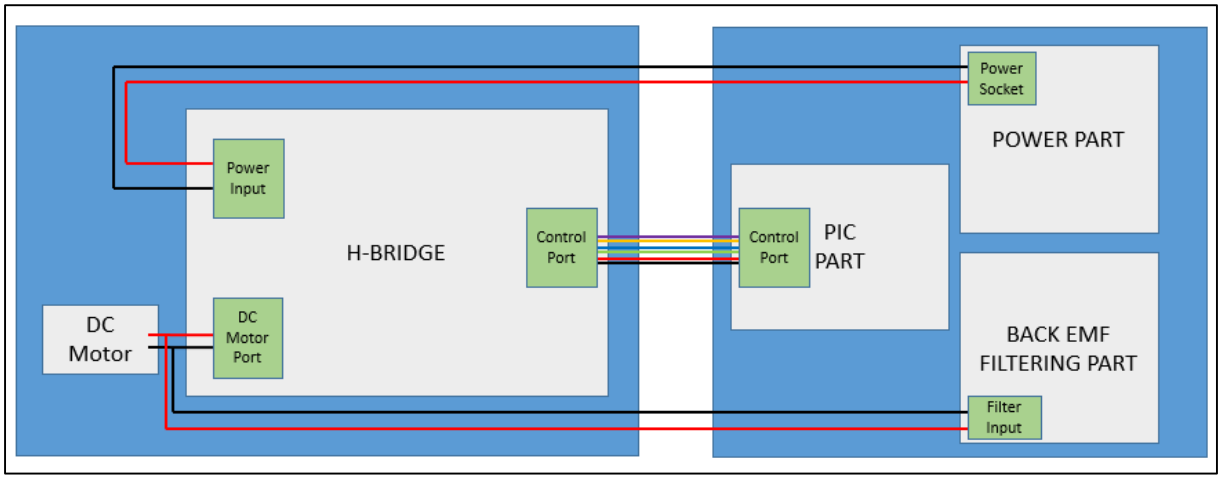
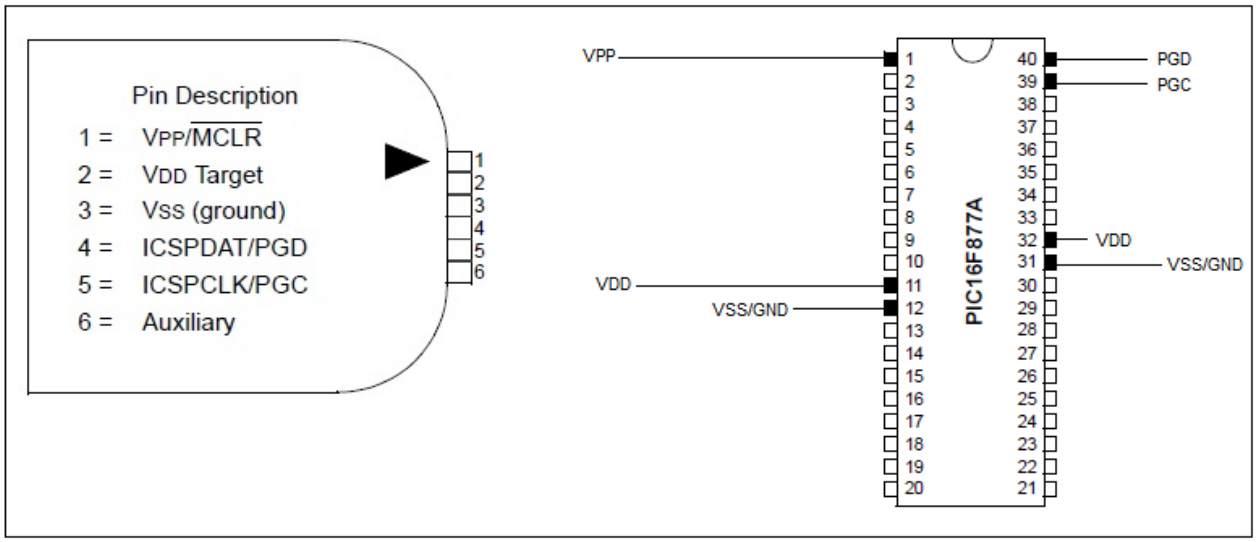
For PID Control course, a control card should be designed and built. This control card should consist of three parts; microcontroller part, power distribution part and back emf feedback and filter part.



- The microcontroller part should have suitable connections in order to upload the code into the microcontroller by any programmer device (in Lab, you have opportunity to use PICKit 3).



- Microcontroller should have at least one PWM output, and one digital output in order to control the motor driver.
- Microcontroller should have a capability to be reset (reset pin should be used with a button).
- Microcontroller part should have out connections for serial communication (Rx-Tx).
- Microcontroller part should have at least two different sockets for reading analog signals.
- The main power should be connected to your custom design card, so it is mandatory and important to have a main fuse connected series to main power connections.
- The power distribution part should have a voltage regulator for the logic level and this logic level should have an out connection with a socket.
- The passive elements on back emf feedback filter can be connected to the card with sockets in order to be changed for different cut off frequencies.
- All connections should be strong enough to be used frequently. Screwed terminals should be used.
- Students should bring needed components and the soldering irons to the class.